GS/GSX/GSX-R NO. 228

DATE: 10/28/2013

Parts Kit A, P/N 59000-01810-RX0

2004-2005 GSX-R600/750 Front Brake Master Cylinder,

Brake Hose No. 1 and Throttle Cable Installation Guide

## 1. Preparation

REPLACEMENT PARTS:

Part Name	Qty	Description			
Cylinder kit,	1	Master cylinder set, P/N 59601-47H30 x1			
FR MASTER		Bracket, reservoir tank, P/N 59751-37H00 x1			
		Brake Hose No. 1, P/N 59480-29G10 x1			
		Throttle cable No. 1, P/N 58300-29G20 x1			
		Throttle cable No. 2, P/N 58300-29G30 x1			
		Washer, brake hose, P/N 09161-10009 x5			
		Bolt, reservoir tank, P/N 09111-05006 ×1			
		Nut, reservoir tank, P/N 09159-05048 x1			
		Cable guide, P/N 58631-29G10 x1			
		Nut, brake lever, P/N 57433-09F00 ×1			

### TOOLS AND LUBRICANTS NEEDED:

- Screwdrivers (Phillips No. 2 & flat blade No. 3)
- Hexagon socket wrench (4mm)
- Socket wrenches (8, 10, 12mm)
- Wrenches (8, 10, 12mm)
- Ratchet, extension bar for ratchet, torque wrench
- Parts cleaner, clear hose, receptacle
- Suzuki DOT 4 Brake Fluid
- Suzuki Silicone Grease, P/N 99000-25100
- Suzuki Super Grease, P/N 99000-25011

### 2. Precautions

# **M** WARNING

Materials such as gasoline and other chemicals can be toxic or flammable.

When working with toxic or flammable materials, make sure the area you work in is well ventilated, and away from sparks or flames.

#### NOTICE

Dust or mud may contaminate disassembled parts.

Clean the motorcycle prior to this replacement.

## NOTE:

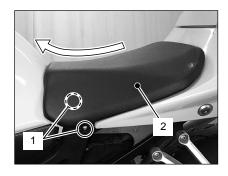
When removing the battery, disconnect the negative (-) cable first, and then the positive (+) cable.

### NOTE:

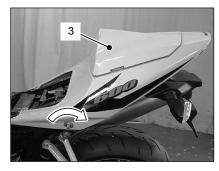
Refer to the appropriate Service Manual for additional service information or specifications.

# 3. Replace the throttle cable

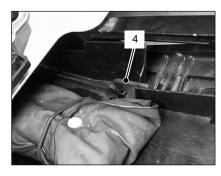
1) Remove the bolts (1) and front seat (2).



2) Remove the seat tail cover (3) or rear seat using the key.



3) Remove the fuel tank prop stay (4).



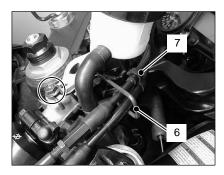
4) Remove the fuel tank mounting bolts (5).



5) Lift the fuel tank and support it with the prop (4).



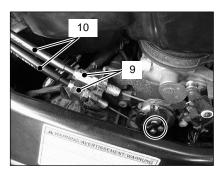
6) Remove the throttle cable guide (6) and clip (7).



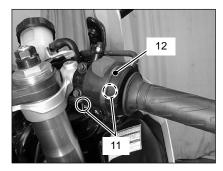
7) Remove the throttle cable guide (8) from the left side of the steering head.



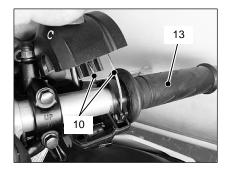
8) Remove the throttle cables (10) from the throttle body by loosening the nuts (9).



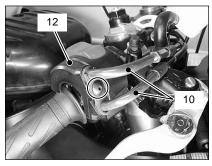
9) Remove the right handlebar switch (12) by removing the screws (11).



10) Remove the throttle cables (10) from the throttle grip (13).



- 11) Remove the throttle cables (10) from the right handlebar switch (12).
- 12) Remove the throttle cables (10).



### Throttle Cable Installation

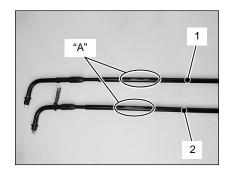
NOTE:

Replacement parts "A": Throttle cable No. 1 (pulling

side) (1) and No. 2 (return side) (2)

29G20: Throttle cable No. 1 (pulling cable)

29G30: Throttle cable No. 2 (return cable)



 Route the new throttle cables No.1 and No. 2 under the steering stem upper bracket.
 See page 13 for cable routing.

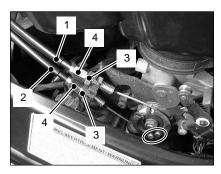


2) Install the new throttle cables No.1 (1) and No. 2 (2) into the throttle body bell crank.

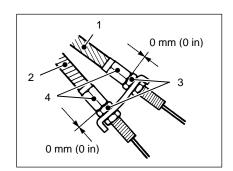
## NOTE:

Install throttle cable No.1 in the top position as shown. This is the pulling cable.

- 3) Loosen the throttle cable lock nut (3).
- 4) Fully tighten the new throttle cable nut (4) until it has zero (0 mm) clearance.



5) Tighten the new throttle cable lock nuts (3).



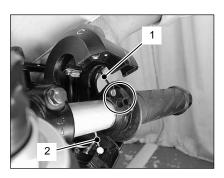
6) Install the new throttle cables No.1 (1) and No. 2 (2) to the right handlebar switch box.



### NOTE:

Adjuster Nut "B" of throttle cable No. 1 (1) should be positioned on top.

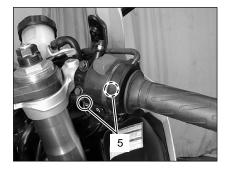
7) Install the new throttle cable No. 1 (pulling cable) (1) to the new throttle grip first, then install the new throttle cable No. 2 (return cable) from the lower side (2).



8) Insert the positioning tab of the right handlebar switch(C) into the hole of the handlebar.



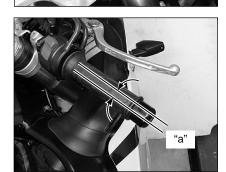
9) Tighten the screws (5) of the right handlebar switch.



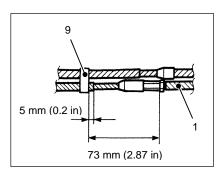
10) Position the throttle cable guide (6) on the left side of the steering head and tighten the bolt.



- 11) Adjust the throttle cable play:
  - (a) Loosen the lock nut (7) of throttle cable No. 1 (the pulling cable) (1).
  - (b) Adjust the adjuster nut (8) (throttle grip): Play "a": 2.0 4.0mm (0.08 0.16 in)
  - (c) Tighten the lock nut (7) while holding the adjuster nut (8).

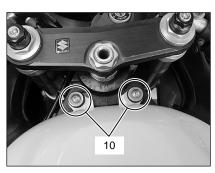


(d) Install the throttle cable clip (9).

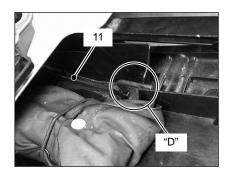


12) Install the fuel tank and tighten the mounting bolts (10). Tightening torque:

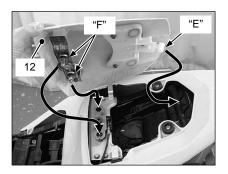
Fuel tank mounting bolt: 6 N-m (0.6 kgf-m, 4.5 lbf-ft)



13) Return the fuel tank prop stay (11) to "D".



14) Reassembe the tail cover (12) or rear seat as shown.



4. Remove the front master cylinder, reservoir tank and front brake hose No. 1.

### **NOTICE**

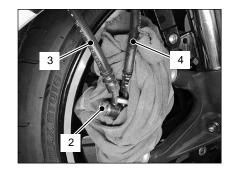
Spilled brake fluid can damage painted surfaces and plastic parts.

Be careful not to spill any fluid when filling the brake fluid reservoir. Wipe up spilled fluid and wash stained parts with water immediately.

1) Remove the battery (-) lead wire (1).



- Cover the right front caliper to proect it from spilled brake fluid.
- 3) Remove the brake hose union bolt (2). Remove the front brake hose No. 2 (3) and No.1 (4) from the caliper.

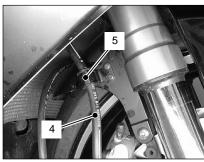


## NOTE:

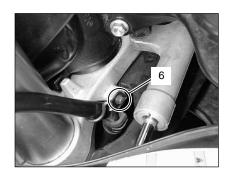
Bag the brake hoses separately to catch spilled brake fluid, and tie them off securely at the top.



4) Remove the right front brake No. 1 hose (4) from the clamp (5).



5) Remove the brake hose clamp bolt (6).



6) Disconnect the brake light switch lead wire couplers (7).



7) Remove the front master cylinder holder bolts (8).



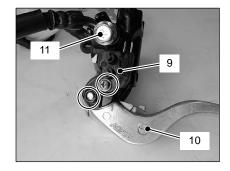
8) Lift up the front master cylinder, reservoir tank and front brake hose No.1.

## NOTE:

Prevent the catch bag from coming off when pulling up on the brake hose.



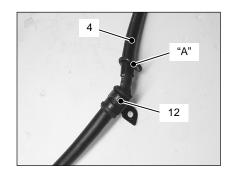
- 9) Remove the brake light switch (9) and brake lever (10).
- 10) Remove the brake hose union bolt (11).



11) Remove the clamp (12) from front brake hoseNo. 1 (4).

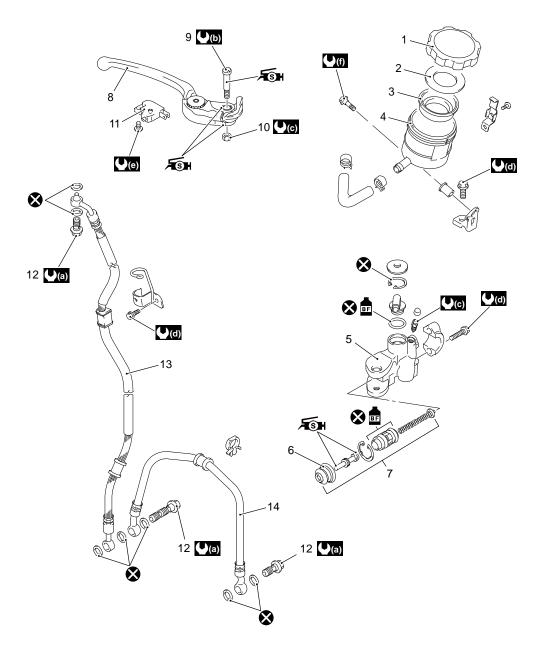
## NOTE:

Be careful not to damage the guide (A).



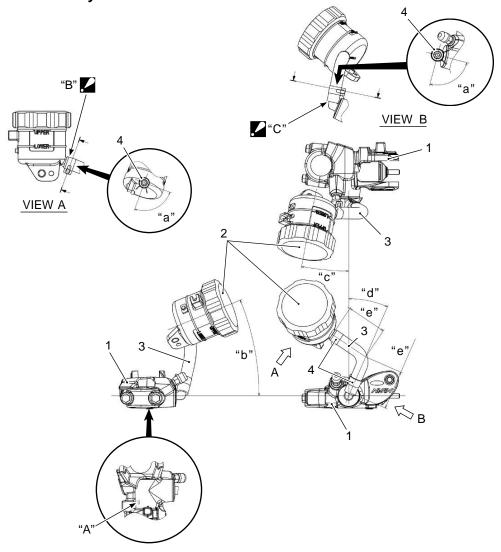
# 5. Assemble the front master cylinder, reservoir tank and front brake hose No. 1

# **Front Master Cylinder Components**



1.	Reservoir cap	9.	Brake lever pivot bolt	:	<b>(</b> (c)	6 N·m (0.6 kgf-m, 4.5 lbf-ft)
2.	Plate	10.	Brake lever pivot bolt lock-nut	:	<b>(</b> d)	10 N·m (1.0 kgf-m, 7.0 lbf-ft)
3.	Diaphragm	11.	Brake light switch	:	<b>(</b> (e)	1.2 N·m (0.12 kgf-m, 1.0 lbf-ft)
4.	Reservoir tank	12.	Brake hose union bolt	:	<b>(</b> f)	0.6 N·m (0.06 kgf-m, 0.4 lbf-ft)
5.	Master cylinder	13.	Brake No.1 hose	:	BF	Apply brake fluid.
6.	Dust boot	14.	Brake No.2 hose	:	ÆSH	Apply silicone grease.
7.	Piston set	: 🖳(a)	23 N·m (2.3 kgf-m, 16.5 lbf-ft)	:	8	Do not reuse.
8.	Brake lever	: <b>(</b> (b)	1 N·m (0.1 kgf-m, 0.5 lbf-ft)			

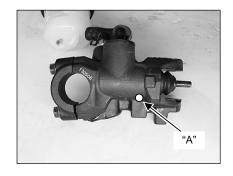
# **Front Master Cylinder**



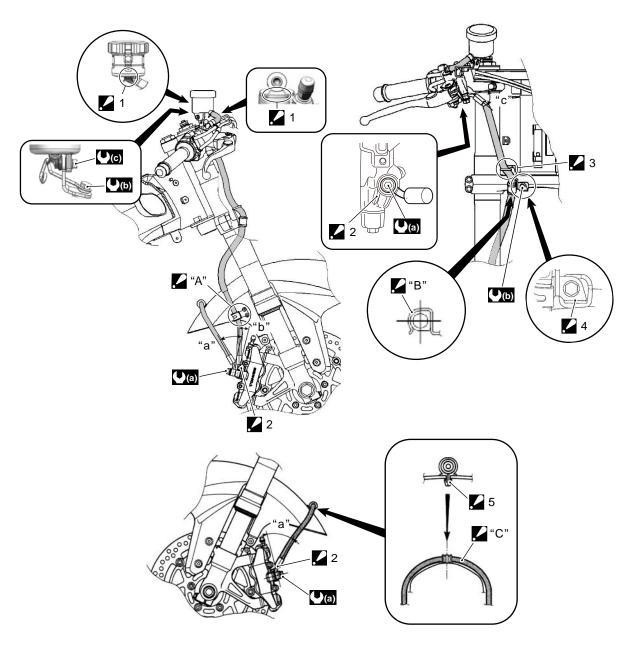
1.	Master cylinder	"A":	Green paint	"b":	22°
2.	Reservoir tank	"В	Insert hose until shoulder of reservoir tank	"c":	11°
3.	Reservoir tank hose	"C.	Insert hose until round shape	"d":	23.5°
4.	Clamp	"a":	90°	"e":	42.5mm

# NOTE:

The new master cylinder has a green dot (A) in the position shown.

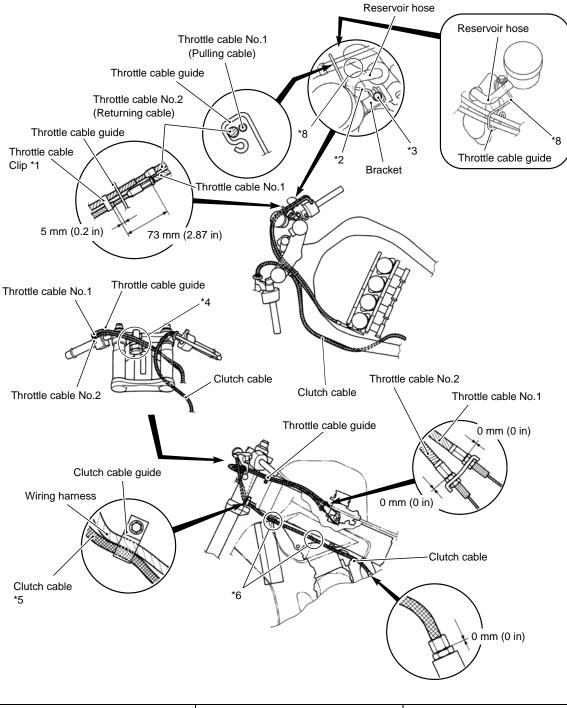


# **Front Brake Hose Routing Diagram**



1.	Clamp : Clamp end should face downward.	·.Z	Clamp the brake hose firmly.	: <b>(</b> (c)	0.6 N·m (0.06 kgf-m, 0.4 lbf-ft)
2.	Stopper : After the brake hose union has contacted to the stopper, tighten the union bolt.	<b>1</b>	Align the sleeve part of brake hose to clamp shape then firmly.	"a":	42°
3.	Guide : Pass the brake hose into the guide.	<b>1</b>	The green paint is right side and face upside.	"b":	14°
4.	Stopper : After positioning the clamp with the stopper, tighten the clamp bolt.	: <b>(</b> (a)	23 N-m (2.3 kgf-m, 16.5 lbf-ft)	"c":	49°
5.	Clamp : Insert the clamp end into the hole on the front fender.	: <b>(</b> (b)	10 N·m (1.0 kgf-m, 7.0 lbf-ft)		

# **Cable Routing**



*1.	After throttle cable adjustment, install the throttle cable clip as shown.	*4.	Pass the throttle cable No.1 over the throttle cable No.2	*7.	Do not touch the throttle cable and reservoir hose.
*2.	Locate the throttle cable guide under the reservoir hose.	*5.	Pass the clutch cable under the wiring harness.	*8.	Keep 5mm clearance between throttle cable and reservoir hose.
*3.	Tighten the bolt together with the bracket and cable guide.	*6.	Pass the clutch cable between the frame and left under the cowling.		

 Apply silicone grease to the brake contact surface of the lever and push rod "B".

Suzuki Silicone Grease, P/N 99000-25100

- Insert push rod "B" put into the master cylinder hole when installing the brake lever (1) on the new master cylinder (2).
- Apply silicone grease to brake lever pivot bolt (3).
   Suzuki Silicone Grease, P/N 99000-25100
  - 4) Tighten the brake the lever pivot bolt (3) and new lock-nut (4) to the specified torque:

Tightening torque:

Brake lever pivot bolt: 1 N·m (0.1 kgf-m, 0.7 lbf-ft)
Brake lever pivot bolt lock-nut: 6 N·m (0.6 kgf-m,
4.5 lbf-ft)

 Install the brake light switch positioning tab into the front master cylinder. Tighten the screw to the specified torque.

Tightening torque:

Brake light switch screw: 1.2 N·m (0.12 kgf-m, 1.0 lbf-ft)

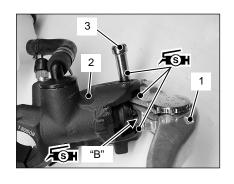
6) Align "C" and punch mark "D" (6) when assembling the new master cylinder (2) to the handlebar (6). Tighten the upper bolt (7) first, then tighten the lower bolt (8). Check the clearance. Tighten the master cylinder bolts to the specified torque.

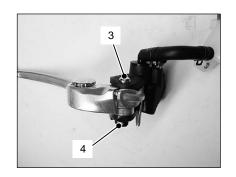
### NOTE:

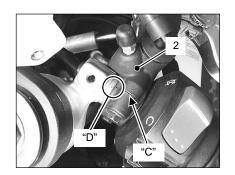
Make sure the UP mark (E) is facing up.

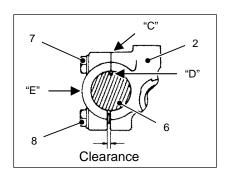
Tightening torque:

Master cylinder holder bolt: 10 N·m (1.0 kgf-m, 7.4 lbf-ft)









- 7) Route the new throttle cable guide (9).
- 8) Tighten the bolt (11) securing the new reservoir tank bracket (10) and new throttle cable guide (9).

### NOTE:

Assemble the throttle cable guide (9) under the reservoir hose.

- 9) Install the new nut (12) to the reservoir tank bracket (10).
- 10) Align the reservoir tank positioning tab and hole of the reservoir tank bracket (F).
- 11) Tighten the new reservoir tank bolt (13) to the specified torque.

Tightening torque:

Reservoir tank bolt: 0.6 N·m (0.06 kgf-m, 0.4 lbf-ft)

12) Keep 5mm clearance between the new throttle cable and the reservoir hose. Tighten the new reservoir tank bolt (11) to the specified torque.

Tightening torque:

Reservoir tank bracket bolt: 10 N·m (1.0 kgf-m, 7.0 lbf-ft)



# 13) Check the following:

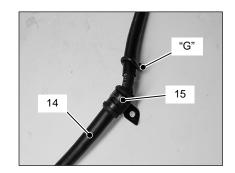
 Do not let the new throttle cable contact the reservoir hose.



 Do not let the new throttle cable contact the speedometer and cowling when the steering is turned full left.



14) Insert the sleeve of the new brake hose No. 1 (14) into the clamp (15) and secure the clamp (15). Then pass it through guide "G".

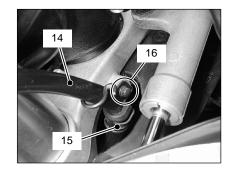


15) Route the front brake hose (14) as shown.

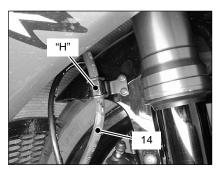
After positioning the clamp (15) with the steering lower bracket stopper, tighten the clamp bolt.

Tightening torque:

Bolt: 10 N·m (1.0 kgf-m, 7.0 lbf-ft)



16) Secure the sleeve of the front brake hose (14) to clamp "H".



17) Install three new sealing washers (15).

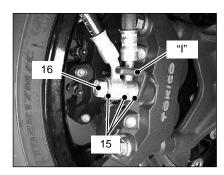
### NOTE:

Clean the contact surface of the sealing washers (15) and brake hose union bolt (16).

18) After positioning the brake hose union bolt with the caliper stopper "I", tighten the bolt (16).

Tightening torque:

Brake hose union bolt: 23 N·m (2.3 kgf-m, 16.5 lbf-ft)



19) Install the new sealing washers (17) on the bottom of the reservoir and the brake hose union bolt.

## NOTE:

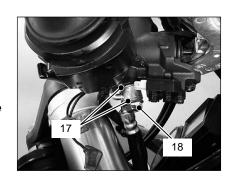
Clean the contact surface of the sealing washers (17) and brake hose union bolt (18).

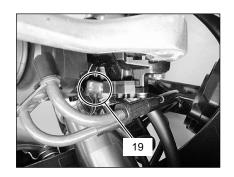
20) After positioning the brake hose union bolt with the master cylinder stopper, tighten the bolt (18).

Tightening torque:

Brake hose union bolt: 23 N·m (2.3 kgf-m, 16.5 lbf-ft)

21) Secure the brake light switch lead wire couplers (19).





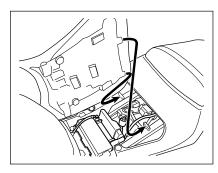
22) Connect the battery (–) lead wire (20) securely.



23) Slide the front seat hooks into the seat hook retainers on the frame and tighten the bolts to the specified torque.

Tightening torque:

Front seat bolt: 6 N·m (0.6 kgf-m, 4.5 lbf-ft)



# 6. Front brake air bleeding

Air trapped in the brake fluid circuit acts like a cushion to absorb a large proportion of the pressure developed by the master cylinder and thus interferes with the full braking performance of the brake caliper. The presence of air is indicated by "sponginess" of the brake lever and also by lack of braking force. It is essential that after remounting the brake and restoring the brake system to the normal condition, the brake fluid circuit be purged of air in the following manner:

#### **NOTICE**

Spilled brake fluid can damage painted surfaces and plastic parts.

Be careful not to spill any fluid when filling the brake fluid reservoir. Wipe up spilled fluid and wash stained parts with water immediately.

- 1) Place the motorcycle on a level surface and adjust the the reservoir tank.
- 2) Remove the reservoir cap (2) and diaphragm.
- 3) Fill the master cylinder reservoir to the upper line "J" with the specified DOT brake fluid.

Specification and classification:

Suzuki DOT 4 Brake Fluid

### NOTE:

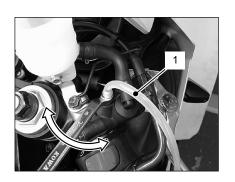
- While bleeding the brake system, replenish the brake fluid in the reservoir as necessary.
- Make sure there is always some fluid visible in the reservoir.
- Slowly add brake fluid to the reservoir to prevent air bubbles.
- Do not release the brake lever when opening the air bleeder valve.



4) Pinch the reservoir hose with your fingers until all air in the hose is released.

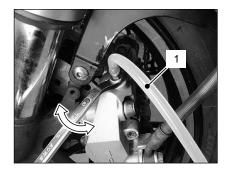


- 5) Attach a clear hose (1) to the master cylinder air bleeder valve, and insert the free end of the hose into a receptacle.
- 6) Squeeze and release the brake lever several times in rapid succession and squeeze and hold the lever fully without releasing it. Loosen the air bleeder valve by turning it 1/6 of a turn, then tighten it. Repeat this process until the fluid flowing into the clear hose no longer contains air bubbles.
- 7) Remove the clear hose (1).





- 8) Attach a clear hose (1) to the left side brake caliper air bleeder valve, and insert the free end of the hose into a receptacle.
- 9) Squeeze and release the brake lever several times in rapid succession, then squeeze and hold the lever fully without releasing it. Loosen the air bleeder valve by turning it 1/6 of a turn, then tighten it. Repeat this process until fluid is flowing into the clear hose.



- 10) Repeat this process until the fluid flowing into the clear hose no longer contains air bubbles.
- 11) Remove the clear hose (1).
- 12) Bleed the right side brake caliper using the same air bleeding procedure.
- 13) Confirm brake lever feel after bleeding the system. If the lever does not feel firm, repeat the air bleeding procedure.
- 14) Tighten the brake caliper bleeder valve and master cylinder air bleeder valve to the specified torque.

Tightening torque:

Brake caliper air bleeder valve: 7.5 N·m

(0.75 kgf-m, 5.5 lbf-ft)

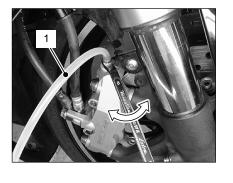
Master cylinder air bleeder valve: 6 N·m

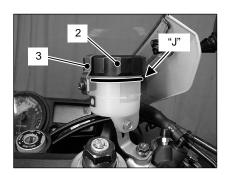
(0.6 kgf-m, 4.5 lbf-ft)

- 15) Fill the master cylinder reservoir to the upper line "J".
- 16) Install the diaphragm, reservoir cap (2) and the plate (3) with a screw.

Specification and classification:

Suzuki DOT 4 Brake Fluid





# 6. Inspection and confirmation after air bleeding

- Check each part's condition and torque.
- Check the brake lever for smooth operation.
- Check the unit's braking performance.
- Adjust the clock.
- Make sure the lights, brake light and turn signals, and all electrical components function properly.
- Make sure the throttle grip returns smoothly and automatically.
- After the procedure is complete, check that the handlebar movement does not increase the engine idle speed.
- For any additional procedures or specifications, check the Service Manual.